APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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SCHWEGMAN LUNDBERG WOESSNER & KLUTH PA
P O BOX 2938
MINNEAPOLIS MN 55402

EXAMINER
ASHBURN, S

ART UNIT	PAPER NUMBER
3713	

DATE MAILED:

08/29/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>25 June 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-51</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-51</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____ .

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2,3</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

RESPONSE TO AMENDMENT

The examiner acknowledges the applicant's amendment submitted 25 June 2001. Claims 48-

51 have been added accordingly.

ELECTION/RESTRICTIONS

Applicant's election with traverse in Paper No. 6 is acknowledged. The examiner has

reconsidered the restriction and determined the requirement to be improper. The requirement is

withdrawn and all claims 1-51 are answered below.

CLAIM REJECTIONS - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent

6,075,939 to Bunnell et al. in view of U.S. Patent 5,707,286 to Carlson et al., U.S. Patent 5,971,851

to Pascal et al., U.S. Patent 5,155,856 to Bock et al., and U.S. Patent 5,778,226 to Adams et al.

In general, commercial computer-based gaming systems incorporate hardware and software

for executing game rules, device drivers, networks, and security applications. Previous commercial

games were typically implemented using manufacturer-specific hardware and software. As disclosed

by the applicant, such systems are costly to reengineer and modernize. With the rise of general-

purpose computers, IBM-PC's are commonly employed as gaming platforms. Although widely

available and cost effective, PC's are not optimal for commercial gaming because of duty cycle and

security requirements, amongst others. Furthermore, as disclosed by the applicants, generic

operating systems, typically used in PC's, are not sufficient for the specialized task.

It is well known to develop custom operating systems for general purpose computer,

including games, because standard operating systems are too large to support many specialized tasks.

For example, systems requiring real-time execution (e.g. games, entertainments devices, virtual

reality devices) commonly employ custom operating systems to meet operational requirements.

Notably, manufacturer specific casino devices inherently require an operating system specialized to

operate the specific device. (Claims 16, 43) In a custom operating system, it is a design choice to

include some or all of a device's software in the boot kernel.

The patent to Bunnell discloses a computer operating system with modular components

coupled to a scalable kernel. The reconfigurability of system allows the creation of customized

operating systems to support various computing environments. The benefits of the system included

low operating overhead, reduced management requirements and simplified development. Bunnell

describes the following features of the claimed invention:

a) System handler, executed by the operating system kernel, operable to dynamically link
   with at least on program object. See fig. 1; 3:4-10; and 3:43-58. (Claim 1, 39, 48)

b) Operating system comprises a system handler. See figs. 1-5. (Claim 30)

c) System handler comprising a plurality of device handlers. See figs 1-5. (Claim 2, 42)

d) System handler loads and executes program objects. See fig. 1-5. (Claims 3, 13, 21)

e) Kernel is modified to access, user-level code from ROM. (Claims 9, 17, 44, 47)

f) Kernel is modified to execute from ROM. (Claims 9, 17, 44, 47)

a) Kernel modifications are modular. See 3:24-30. (Claim 10, 38)

g) System handler comprises APIs with functions callable from program objects. See 3:43-59; 9:50-54; and 11:20-12:15. (Claims 11, 19, 26, 33, 35, 40)

h) System handler comprises manages an event queue. 3:39-42 (Claim 12, 23, ,24, 25, 32, 34, 39)

i) Loading and unloading program objects. See 3:43-59; 9:50-54; and 11:20-12:15. (Claims 14, 21)

As listed above, Bunnell discloses a customizable operating system for performing specialized tasks. It is analogous to the system of the claimed invention, however it does not describe the specifics of a gaming device. The following lists the features of the claimed invention not described by Bunnell:

b) Controller is general-purpose computer or an IBM-PC compatible. (Claim 6, 17, 29)

c) Kernel is a modified LINUX kernel. (Claim 7, 8)

d) Event queue based on more than one criteria. (Claim 37)

e) Operating system kernel is customized for gaming use. (Claim 16, 43)

f) Program objects defining a game personality in selected modes. (Claim 28)

g) Kernel is modified to zero-out unused RAM. (Claims 9, 17, 44, 47)

h) Kernel is modified to hash the kernel. (Claims 9, 17, 44, 48)

i) Kernel is modified to disable selected device drivers. (Claims 9, 17, 44)

j) Game data objects stored in nonvolatile memory. (Claims 4, 13, 21)

k) Call back function executed in the system handler if data is changed in nonvolatile memory. See fig. 1 and 11:20-12:14. (Claims 5, 15, 22)

l) Game data stored in nonvolatile memory such that data is not lost when controller losses power. (Claims 18, 20, 27, 49)

m) Operating system controls a networked computer system. (Claim 45)

       n) Operating system controls a progressive game meter. (Claim 46)

The features listed above describe typical game device methods implemented on a PC. In view of

Bunnell, it would be obvious to modify an operating system for gaming purposes by incorporating

features typically employed in casino devices; for example, security, loss of power recovery,

interface to game peripherals, networking, etc. Although not described by Bunnell, these features are

either known or suggested by prior references.

      As disclosed by the applicant, the patent to Carlson offers a "universal gaming engine". In

general, Carlson teaches that functions common to a number of games need not be implemented

separately for each one.   More specifically, the system stores game rules on EEPROM and saves

engineering effort by reusing components. Hence, Carlson suggests using modular, generic

components in a gaming device. More specifically, it describes the following features relevant to the

claimed invention:

a) Maintaining a library of game code for a plurality of games in nonvolatile memory. See

    5:15-18 and 9:65-10:55. (Claim 28)

b) Storing game state data stored in nonvolatile memory. See 7:7-10; and 9:38-45. (Claims

    4, 13, 21)

c) Performing verification tests on the random number generator. See7:45-54.

d) Overwriting data in memory, to prevent bad or tampered data from being used. See 7:66-

    8:7.

e) Storing the operating system and kernel in ROM. See 9:25-30.

f) Controlling a networked system. 12:18-13:50.

Notably, by providing a game unit with a plurality of games, Carlson suggests features of the claimed

invention. First, depending on the selected game, the program objects inherently define a different

game personality. (Claim 28) Second, the priorities defined by the various configurations of

hardware and software inherently results in variations of the event queue. (Claim 37)

Linux is a common choice for implementing customized operating system because it is freely

distributed, well documented, stable, and IBM-PC compatible. It would be obvious design choice to

employ LINUX as the basis for any customized operating system. (Claims 7, 8)

IBM compatible personal computers are a common design choice for any computer processor

based system due to their speed, affordability, and availability. PC-based systems are commonly

employed in industrial, commercial, and entertainment systems. It would obvious design choice to

employ a PC-based processor in any computerized system. (Claims 6, 17, 29)

Device drivers are typically loaded into computer memory during booting of the operating

system kernel. Consequently, the kernel the device drivers are modified in the kernel depending on

the hardware configuration of the computer. The patent to Adams et al. describes modifying

operating system kernel to enable/disable device drivers. Adams teaches a flexible method to

improve the ease of attaching devices to a computer. In view of Adams, it would be obvious to

modify the kernel to disable selected device drivers in the claimed invention. (Claims 9, 17, 44).

It is a standard programming practice when initializing a computer device to "zero-out"

memory registers in order to remove any vestigial data that may remain after booting. The patent to

Bock et al. describes a method for zeroing-out unused registers to provide security upon initialization

and reset of a system. In view of Bock, it would be obvious to perform the operation to ensure

security in the claimed invention. (Claims 9, 17, 44, 47)

Data callbacks are commonly employed in computer programming. The patent to Pascal et

al. discloses a method for managing exceptions and faults in a gaming device using callbacks. Pascal

describes an operating system for a game executing software modules that affect a callback upon

occurrence of certain events. As a result, the operating system can react to faults detected during execution of a module (e.g. stop play). It is well known for gaming system to monitor changes in nonvolatile memory to detect tampering. In the claimed invention, it would be obvious to use a callback to the operating system if a change in nonvolatile memory is detects. (Claims 5, 15, 22)

It is well known in casino devices to verify the data continued in nonvolatile memory to ensure it has not been altered. Typical methods employ checksum and hash functions. The operating system kernel is typically stored in nonvolatile memory. It would have been obvious to perform a hash function on the kernel to verify no tampering has occurred. (Claims 9, 17, 44, 47)

It is well known in casino devices to store game data in nonvolatile memory such that it is not lost when the device losses power. This feature prevents ensures recovery after power loss and avoids cheating by either the player or operator by removing power. It would be obvious to include this feature in any commercial gaming device. (Claims 18, 20, 27, 49)

It is well known in casino devices to link games to a network to provide progressive games, tournament games, security, monitoring, validation, verification, accounting, etc. In a device which requires a network link at all times, it would be obvious to execute the process as part of the operating system kernel. (Claims 45, 46, 50, 51)

As describes above, it would have been obvious to one skilled in the art at the time of the invention to customize the operating system disclosed by Bunnell to provide a gaming device by incorporating standard gaming features into a customized operating system kernel implemented on a PC. The resulting system would allow a gaming device to be implemented on a general purpose computer providing a platform that can be cost effectively modified while avoiding the deficiencies of employing a PC for gaming device.
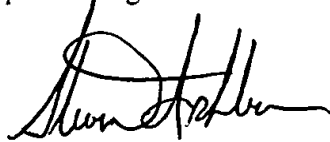
CONCLUSION

The following prior art made is considered pertinent to applicant's disclosure of record, but

not relied upon:

U.S. Patent 6,071,190 to Weiss et al.	U.S. Patent 5,497,490 to Harada et al.
U.S. Patent 5,778,226 to Adams et al.	U.S. Patent 5,553,290 to Calvert et al.
U.S. Patent 5,634,058 to Allen et al.	U.S. Patent 5,809,329 to Lichtman et al.
U.S. Patent 6,251,014 to Stockdale et al.	U.S. Patent 5,353,411 to Nakaosa et al.
U.S. Patent 6,210,274 to Carlson	U.S. Patent 4,525,559 to Curran et al.
U.S. Patent 5,375,241 to Walsh	U.S. Patent 5,999,990 to Sharrit et al.

Any inquiry concerning this communication or earlier communications from the examiner

should be directed to Steven Ashburn whose telephone number is 703 305 3543. If attempts to reach

the examiner by telephone are unsuccessful, the examiner's supervisor, Valencia Martin-Wallace

can be reached on 703 308 1148. The fax phone numbers for the organization where this application

or proceeding is assigned are 703 305 3590 for regular communications and 703 308 3579 for After

Final communications. Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703 308 1078.

Steven Ashburn
August 26, 2001

**MICHAEL O'NEILL
PRIMARY EXAMINER**